

or other substances which are suitable soils for their growth and development. Their luminous properties are dependent on a supply of free oxygen and a suitable percentage of a soluble chloride in the nutritive medium. The exhibit consisted of artificial cultivations of these organisms on suitable nutrient soils, and showed their luminous properties and the variations that occur under different physical conditions.

Mr. Everard im Thurn, C.B., C.M.G., exhibited arrow-heads of rock crystal from British Guiana, and orchids growing wild in British Guiana; Mr. Vaughan Cornish, photographs of waves, &c., in sand, cloud and snow; Mr. J. Wimshurst, F.R.S., photographs which exhibit some of the properties of the light emitted by Röntgen ray tubes; Mr. Hugh Ramage, diagrams of corresponding lines in homologous spectra; the Meteorological Office, pilot charts of the North Atlantic and Mediterranean for April and May, 1901; the Cambridge Scientific Instrument Company, Ltd., Callendar and Griffith's patent temperature indicator, and photographs of the spectroscope, made for Sir David Gill, for use with the McClean telescope, Royal Observatory, Cape of Good Hope; and the Carl Zeiss Optical Works, stereoscopic binocular range-finder. The reading is taken direct from a scale within the instrument without calculations, giving the distances in meters. Range from 75 to 3000 meters; Prof. J. C. Bose, experiments on binocular alternation of vision; and Mr. R. Shelford, swords and knives from Sarawak, Borneo.

The Director, British Museum (Natural History), exhibited models illustrating the structure of the gills of bivalve mollusca; examples of mormyrid fishes from the Nile; a series of adult and young birds and eggs of the Adelia penguin (*Pygoscelis adeliae*); trephined skulls of natives of the Bismarck Archipelago, collected by the Rev. J. Crump and deposited in the British Museum by Mr. W. E. de Winton. These skulls illustrate native methods of performing the operation of trephining, and are of especial interest owing to the clinical histories of their owners being known. Claw and tooth of Neomylodon Patagonia, and coloured model of the right whale; Prof. A. G. Greenhill, F.R.S., showed a reflecting stereoscope; trochleostatic—diagram and models of pulleys; Mr. C. V. Boys, F.R.S., tool grinding appliance; Dr. Dawson Turner, a mechanical interrupter for an induction coil; and the Marine Biological Association, examples of marine plankton from the neighbourhood of Plymouth. The term marine plankton is used to denote organisms whose normal mode of life is to swim freely in the sea-water, in contradistinction to such as live in contact with the sea-floor. The Observatory, Cambridge, exhibited a machine for measuring astronomical photographs; and Prof. Callendar, F.R.S., a standard barometer.

Photographs of Nova Persei were exhibited by Sir Norman Lockyer, K.C.B., the Rev. W. Sidgreaves, S.J., and Mr. Frank McClean, F.R.S.

The Zoological Society of London exhibited living specimens of the Heloderm (*Heloderma suspectum*) from Arizona, the only venomous lizard known; Dr. J. H. Gladstone, F.R.S., ancient Egyptian gold; Mr. W. Flinders Petrie, casts and photographs of Egyptian jewellery of the 1st dynasty, 4700 B.C., and specimens of molecular transference in ancient bronze; Prof. A. W. Rücker, Sec. R.S., and Prof. J. W. Judd, C.B., F.R.S., specimens of atmospheric dust which fell at Taormina, Sicily, during the month of March, giving rise to the so-called "blood rain"; Sir W. Roberts-Austen, K.C.B., masses of chromium, manganese, ferro-titanium and cobalt. These specimens of metal were reduced from their oxides by means of finely divided aluminium, by Dr. Hans Goldschmidt.

Dr. P. L. Sclater, F.R.S., exhibited two bandoliers from the Semliki Forest, Congo Free State, made from the skin of a new mammal; Dr. H. Woodward, F.R.S., coloured casts of objects of natural history, prepared at the British Museum (Natural History); an enlarged model of the shell of *Ascoceras*, a cephalopod occurring in the silurian rocks of England, Sweden and North America; and table of British strata, coloured; Mr. G. Abbott exhibited symmetrical concretions, and "growth" in inorganic matter. Also specimens of four varieties of the cellular or magnesian limestone of Sunderland (Permian), which show a striking resemblance to corals, yet are believed to be only concretionary and inorganic. Hon. Walter Rothschild, M.P., exhibited leg bones and egg of *Aepyornis titan*, Madagascar; Mr. W. Duddell exhibited the musical arc. If a direct current arc between solid carbons be shunted by a suitable self-induction and condenser in series, alternating currents will flow round the shunt circuit, the arc thus converting part of the direct

current into alternating current. The frequency of the alternating current is determined, as in the case of the oscillatory discharge of a Leyden jar, by the capacity and the self-induction of the circuit. These alternating currents superposed on the direct current through the arc will cause it to emit musical notes, the pitch of which can be varied by altering the capacity or self-induction, and a tune can be played on the arc by this means.

The Telegraphone Syndicate exhibited the telegraphone. This instrument, the invention of Mr. Poulsen, of Copenhagen, depends for its action upon the fact that the variations of the magnetic field of an electro-magnet are so accurately represented by the magnetisation of a steel wire which is drawn through it, that if the wire be again passed through the field, currents exactly similar to those which produced the magnetisation of the wire are reproduced in the coils of the magnet. This principle has been applied to the reproduction of speech transmitted through an ordinary microphone transmitter.

The following demonstrations were given by means of the electric lantern:—Dr. Arthur Rowe, life-zones in the White Chalk, and their significance in connection with the evolution of species; Mr. Francis Fox, some engineering problems and their solution; Prof. Silvanus P. Thompson, F.R.S., kinematograph diagrams, illustrating magnetic fields.

### THE NATIONAL ANTARCTIC EXPEDITION.

PROF. J. W. GREGORY has to-day (May 15) cabled his resignation of the leadership of the scientific staff of the National Antarctic Expedition in circumstances which will shortly be fully explained to the Fellows of the Royal Society by one of their number.

The great majority of scientific men in this country were confident that Prof. Gregory possessed unique qualifications for the post of scientific leader of an expedition in which many branches of science required study and coordination. Under his direction, and with a competent naval head who should have an absolute veto upon all operations which involved risk to ship and crew, great scientific results were assured.

The opposition of the representatives of the Royal Geographical Society, which had obtained most of the funds voluntarily subscribed, and of a few scientific men belonging to the Navy, rendered it impossible that these full powers could be granted; but a compromise acceptable to Prof. Gregory was passed by a large majority (16 to 6) of the Joint Antarctic Committee, including the officers of both societies and almost every expert on their joint lists.

The compromise provided, in the words submitted on February 12 to the joint committee, "that a landing party, if possible, be placed on shore, under the charge of the Director of the Civilian Scientific Staff." Prof. Gregory was informed of this, accepted it, and, the next day, sailed for Melbourne.

The Royal Geographical Society's council refused to accept the compromise, and deputed three of their number to suggest to the officers of the Royal Society that the matter should be settled by a new committee of six, three to be appointed by each council. The Royal Society consented; the committee, chiefly composed of non-experts, met, and proposed modifications which Prof. Gregory has been unable to accept.

We shall await with some interest to see whether the majority of Fellows of the Royal Society, and of other scientific men in this country, will approve the manner in which the Royal Society has acted as the guardian of scientific interests.

### NOTES.

INTELLIGENCE has just reached us from Melbourne that on April 10 news had been received from Charlotte Waters, both by letter and telegram, of the safety of Prof. W. Baldwin Spencer and his energetic co-explorer, Mr. Gillen. They report themselves in good health and already busy taking phono-

kinematographic records; and it is good news that the Postmaster-General of South Australia has provided them with a pocket apparatus for tapping the overland telegraph line when in the vicinity of their route. We are also informed that during Prof. Spencer's absence some of his duties are being partly performed by Miss Ada M. Lambert, a distinguished student of the Melbourne University, whose name and work will be well known to all who follow the progress of zoology at the Antipodes.

DR. GUSTAV ZEUNER, of Dresden, has been elected a correspondant of the Paris Academy of Sciences, in the section of mechanics. Dr. Oudemans has been elected a correspondant in the section of geography and navigation.

ONE noteworthy feature of the modern educational revival in this country is the gradual conversion and development of the older grammar schools so as to bring them more into harmony with the requirements of the time. Among the latest examples of this enlightened policy is the King's Middle School at Warwick, one of the most ancient foundations in the country. Its founder is said to have been Lady Ethelfleda, daughter of King Alfred, and in date it is coeval with the castle, although the present buildings are modern. The School was opened on May 4 as a School of Science by Sir George Kekewich, who addressed a large meeting in the central hall, in the course of which he said that "science had now come to be regarded as a proper part of the education of every man, in whatever class he might be and in whatever position of life." He added also, among other pregnant remarks, that "it was the new knowledge in science that paid. It was the new knowledge that preserved the nation that produced it in the forefront of commercial and industrial supremacy." The Earl of Warwick, chairman of the board of managers, presided at the meeting, and gave in his opening remarks a brief account of the history of the School and the origin of the present development. The expense of building the new laboratories, &c., has been partly met by a contribution from Sir Thomas White's Charity and partly by a grant from the County Council. Among other speakers who addressed words of encouragement to the managers and scholars were the Countess of Warwick, Dr. Oliver Lodge, representing the nearest University (Birmingham), with which he hoped to see the school hereafter affiliated, Prof. Meldola, Mr. Bolton King, chairman of the Warwickshire Technical Instruction Committee, the Mayor of Warwick, Mr. Alderman Glover and others. The head-master is Mr. H. S. Pyne, who in organising the curriculum hopes to include the scientific subjects bearing upon agriculture, this being the predominant industry in the districts immediately contiguous to the ancient county town. The mining industry is already provided for by a mining school, established elsewhere by the County Council.

THE conversazione of the Society of Arts will be held this year at the Royal Botanic Gardens, Regent's Park, on June 28.

MR. REGINALD SMITH, of the British Museum, has just conducted a second excavation on the Winklebury Estate, Basingstoke. He found fragments of pottery, which he said undoubtedly belonged to the ancient British period, *i.e.* before the Roman invasion of Britain.

THE eighty-fourth annual meeting of the Swiss Natural History Association will be held at Zofingen on August 4-6. At the same time and place, the Swiss Geological, Botanical and Zoological Societies will hold their meetings. Intending visitors should send their names before July 15 to Herr Ulr. Ammann, Zofingen.

THE death is announced, on April 8, of Giulio Bizzozero, professor of pathological anatomy of the University of Turin.

Bizzozero was born on March 20, 1846, and was elected a fellow of the Accademia dei Lincei on November 12, 1883, and became a senator of the Italian Government in 1890. His best known discoveries refer to the spinous cells of the epidermis, the functions of the medulla of the bones, the intestinal epithelium, and the morphological elements of blood. He founded a school of histology for Italy, and included Golgi among his pupils.

A FEW days earlier, on April 5, the Accademia dei Lincei was bereft of its president, Signor Angelo Messedaglia, who was born on November 2, 1820, and obtained the fellowship of the Accademia in 1875. Messedaglia's speciality was political economy and statistics, but his knowledge also embraced modern and ancient literature, history, mathematics, astronomy, geography and physics. His last work on Homeric uranology bears abundant testimony to his wide range of study and careful reasoning. He preserved his full activity and intellect nearly till his death.

THE steps taken to provide a memorial of Dr. Walter Myers, who lost his life at Para on January 20 from yellow fever, caught while investigating that malady for the Liverpool School of Tropical Medicine, were explained at the last meeting of the committee of the School. The committee has offered to erect memorial brasses in University College, Liverpool, and in Birmingham University, and the offers have been accepted. The School has also erected a tombstone over the grave of Dr. Myers at Para. It has been resolved to found, as a permanency in the School, the Walter Myers Chair of Tropical Medicine, besides a supplementary fellowship for the next five years, to be called the Walter Myers Fellowship of Tropical Medicine.

THE Whitsuntide excursion arranged by the Geologists' Association is to the new line of the Great Western Railway from Wootton Bassett to Filton, and the district around Bristol. The party will leave Paddington Station on Saturday, May 25, and return in the following week. Many sections, beds, and other features of geological interest will be examined, and the excursion will be enjoyed by all who take part in it. The Yorkshire Naturalists' Union have arranged an excursion to Brough on Whit-Monday for the investigation of Welton, Elloughton and Brantingham Dales, and the southern extremity of the Yorkshire Wolds.

WE are pleased to learn from *Science* that the Legislature of the State of Wisconsin has presented to Dr. S. M. Babcock, of the University of Wisconsin, a fine bronze medal "recognising the great value to the people of this State and the whole world" of his inventions and discoveries, "and his unselfish dedication of these inventions to the public service." Scientific work is so often overlooked by the State that it is pleasing to record the recognition of it. Dr. Babcock's renown rests largely upon his milk test, which has proved of immense value in the dairy industry, but to men of science, who are familiar with dairy and agricultural investigations, his many discoveries in these fields are regarded as even more brilliant and of more value to science than the invention for which he has now been honoured.

THE educational and scientific sides of war will receive special attention at the Naval and Military Exhibition shortly to be opened at the Crystal Palace. Demonstrations will be given of wireless telegraphy, the Röntgen rays and other scientific experiments applied to the uses of war in the Army and Navy. The use of the balloon in military operations will be demonstrated; and a special interest attaches to this section, as Sir Redvers Buller is lending the balloon employed by him during the siege of Ladysmith. In connection with this



section, and naturally forming part of it, will be an exhibition of war kites, the uses of which will be shown. In an "Arctic" section there will be, not only a large collection of Arctic relics and pictures, but also a tableau illustrating Nansen's polar expedition. In the inventions section a series of the latest and most valuable applications of mechanical science to the needs of the Army and Navy will be on view.

A CHRISTIANIA correspondent of the *Times* reports that the second international Hydrographic Conference held its final meeting on Saturday. The object of the Conference was to complete the international programme of research and the plan of organisation drafted in Stockholm in 1899. The original programme has been revised to meet the wishes of the participating Governments, and it is believed that the new proposals will command such general approval as to permit of the commencement of international investigations at an early date. The Governments of all the countries bordering on the North Sea and the Baltic were represented at the Conference, except France, the geographical position of which gives her less practical interest in the area of research. The Norwegians and Russians have already provided themselves with special steamers adapted to the proposed investigations, and a German steamer is now being built. The arrangements of most of the smaller States are well advanced. It is believed that it now rests with the British Government to decide whether the international programme shall be carried out or not.

THE *Revue Scientifique* contains an account of the first meeting of the "Association Internationale de la Marine," held from April 12 to 15 in the building of the oceanographical museum at Monaco. Amongst the more important communications received was one by H.S.H. the Prince of Monaco on the meteorological service of the Azores, which has recently been actively taken up by the Portuguese Government and is now to be carried on on a very adequate scale at an annual cost of 45,000 francs. M. Charles Bénard, president of the Société d'Océanographie du Golfe de Gascogne, contributed a paper on improvements in the equipment of vessels in case of shipwreck, his proposals embodying, in particular, the suggestions of the Prince of Monaco with regard to proper fishing appliances in ships' boats. M. Thoulet's lithological map of the coasts of the Seine Inferieure was presented, and a resolution urging the need for preparing such maps of all frequented coasts, in the interest both of navigators and fishermen, was adopted. The Congress also declared itself in favour of the establishment of a permanent Bureau Maritime Internationale, which should concern itself with all maritime affairs of international interest, lighting and buoyage, regulation of fisheries, assistance of sailors and the like. The Prince of Monaco, at the earnest invitation of the Congress, agreed to take the initiative in attempting to bring about the formation of the proposed organisation.

THIS year's Deutscher Geographentag will open at Breslau on Monday, May 27. On the morning of May 28 Prof. Neumayer will present the report of a committee upon Antarctic exploration, and will speak upon magnetic investigations in polar regions. Dr. E. Philippi will deal with the geological problems of the German Antarctic expedition, and Prof. A. Supan with the Antarctic climate. At the second sitting the subject to be discussed is the organisation of geographical instruction, the speakers being Prof. H. Wagner, Dr. Auler and Herr H. Fischer. On Wednesday morning, May 29, the subjects to be brought before the meeting relate to the scientific study of lands and native races of German colonies. The speakers will include Prof. F. v. Richthofen, Prof. G. Volken, Dr. E. Kohlschütter, Prof. K. Dove and Prof. Schenck. The methods of geographical instruction will be discussed in the afternoon of the same day by

Dr. A. Becker, Prof. A. Fischer, Prof. A. Kirchhoff, Prof. Langenbeck and Prof. A. Bludau; demonstrations will also be given by Prof. K. Dove and Dr. M. Ebeling. In the evening an illustrated lecture will be given on glacier markings in Montenegro, by Prof. K. Hassert, and one on the volcanoes of central France by Dr. M. Friederichsen. At the fifth sitting, on May 30, the papers will deal with various aspects of glaciers and glaciation, and the speakers will include Profs. Finsterwalder, H. Meyer, S. Günther, A. Penck, W. Goetz and Dr. W. Halbfass. On the afternoon of the same day, reports and papers will be received from Prof. A. Kirchhoff and C. M. Kan, and Dr. K. Sapper; and the general business of the association will be transacted. Excursions have been arranged for a few days at the end of the meeting, and exhibits of geographical interest will be on view in two museums in Breslau. The general secretary, with whom intending visitors should communicate, is Dr. R. Leonhard, Schillerstr. 28, Breslau.

In the *Journal* of the Quekett Microscopical Club Mr. J. Rheinberg describes a simple contrivance for viewing, under the microscope, the diffraction patterns of diatoms and other objects of similar structure. The method adopted by Dr. Johnstone Stoney is to look at the objective through a small hole fixed near the usual place of the eyepiece. Mr. Rheinberg finds that the diffraction patterns can be better seen above the eyepiece by fixing in a short tube the objective of one of the 7s. 6d. toy microscopes, which is a lens of about  $\frac{1}{4}$ -inch focus, stopped down to an aperture of about 1 mm. This arrangement, placed over the ordinary eyepiece, shows the diffraction patterns magnified, and, further, it gives plenty of light, and the patterns cannot shift.

A VERY convenient addition to the laboratory or workshop equipment is the rosin-cored solder recently introduced by the Patent Solder Co., Ltd. This commodity is guaranteed to consist of pure metals mixed in the most efficient ratio, and, as its name implies, has incorporated with it the requisite amount of rosin so that no additional flux is necessary. This is attained by making the solder in the form of a tube with narrow bore, the central cavity being occupied by the flux. The two ingredients being together will facilitate work in difficult positions, and the cleanliness in working will be found a special recommendation for electrical work. The solder is made in four sizes, each of three qualities. The sizes vary from 1/16th to  $\frac{1}{4}$ -inch diameter.

THE *Physical Review* for March contains an article by Prof. Carhart on the various determinations of the E.M.F. of the Clark cell. The value originally obtained by Clark reduced to present units at 15° C. is 1.4378 volts, but subsequent research has shown that this is somewhat too high. Prof. Carhart summarises the results of eight other determinations of this constant, in five of which the value was obtained by the use of the silver voltmeter, the remaining three values being obtained by absolute methods. The mean value calculated from the whole eight determinations is 1.4335 volts at 15° C., and the mean of the three absolute determinations is 1.4333 volts. Prof. Carhart concludes that the true value is nearer 1.433 volts than the generally accepted value of 1.434 volts. This conclusion is borne out by the results of two determinations of the mechanical equivalent of heat by electrical methods, in both of which the values obtained are higher than those given by direct mechanical methods; if the E.M.F. of the Clark cell is taken as 1.433 volts instead of 1.434, the discrepancies almost disappear.

THE same journal contains an interesting article by Mr. Carl Kinsley on the measurement of the sensitiveness of coherers for wireless telegraphy. Mr. Kinsley urges the desirability of some

standard method of comparing coherers so that the work of different experimenters may be compared, and suggests two ways in which this may be done. Coherers may either be compared relatively by measuring the height of vertical wire necessary for them to respond to signals sent by a given transmitting apparatus at a given distance, or, absolutely, by measuring the voltage at which their initial resistance breaks down. The two methods, it is pointed out, always give the same relative results; the latter appears to be preferable as it is more easily carried out, and, moreover, eliminates all errors which might arise through differences in the transmitters, which is especially advantageous in the case in which the work of different persons is being compared. Mr. Kinsley rightly insists that the absolute value of the resistance after the breakdown, whether high or low, is not of much importance, as the relay can always be designed to work well with the particular coherer with which it is intended to use it.

WE have received from the Rev. J. Coronas, S.J., of the Manila Observatory, a discussion of a cyclone (*El baguio del 8 de Septiembre*, 1900) which traversed the centre of the island of Luzon and is said to have been the most severe storm experienced during the previous six years. It is satisfactory to note that, notwithstanding the paucity of observations from other stations owing to the disturbed condition of the island, the observatory was able to give notice of the existence of the disturbance after the Pacific three days before its arrival on the coast. The observations are insufficient to determine the track of the storm across the Pacific, but after leaving the west coast of Luzon it took a north-westerly course and, crossing the China Sea, reached the mainland near the north of Hainan on September 11. The fall of the barometer was greatest, and the winds the most violent, in the rear of the cyclone; a considerable rise of the barometer was observed at all stations in the front of the disturbance, and was correctly interpreted as a bad sign. The rise was much more rapid than the subsequent fall. The author discusses at some length the premonitory signs of such disturbances, particularly convergence of cirrus clouds and the swell of the sea; the latter is at times observed some 500 miles in advance of the approaching storm.

It is reported that an American citizen and a member of the Roman Catholic Church has offered to present to the Pope a telescope larger than that shown at the Paris Exhibition of last year. His Holiness is stated to have accepted the gift, which is now destined to find a prominent place amongst the many valuable instruments of research of the Vatican Observatory, which was presented, just over a century ago, by Cardinal Zelada with the then famous Dollond's telescope. Referring to this gift, the *Lancet* gives some interesting particulars concerning the Vatican Observatory. There seems to be scarcely any doubt that an observatory tower was erected in Rome so far back as some time previous to 1582, and, as it would appear, chiefly in connection with the reform of the Calendar. According to B. Crescenzi, Pope Gregory XIII. was mainly responsible for its erection. It is recorded that the tower was intended exclusively for astronomical observations and researches, and there is, from an historical point of view, every reason to suppose that it was the first celestial watch-tower ever built in Rome. Since its erection, however, and partial endowment by Pope Gregory XIII., it has passed through many and highly complicated vicissitudes. It became of world-wide renown at the beginning of the last century, chiefly on account of the scientific labours and able management of Philip Gili, who, for a period extending over thirty years, was its director. After the death, however, of Gili, which occurred in 1821, it again became quite disorganised. In 1888 the Vatican Observatory commenced a new epoch in its history. In that year the com-

memoration of the fiftieth anniversary of the priesthood of Pope Leo XIII. took place, and on that occasion all the instruments and apparatus given by members of the Roman Catholic Church interested in celestial and terrestrial physics were brought together, and it then occurred to the organisers of the science section of the Vatican Exposition that they would find a suitable home in the old Gregorian tower. The suggestion was warmly approved and soon carried into effect, and the Observatory has since then taken a place in the first rank.

THE new number of the *Mitteilungen aus den deutschen Schutzgebieten* is, as usual, largely devoted to statistics of meteorological observations and astronomical determinations of positions. A map of East Usambara, on a scale of 1:50,000, based on trigonometrical and topographic surveys, accompanies the number, also sketch-maps from surveys of the Kirunga volcano region, and of the Ramu river in New Guinea. There are short articles referring to the maps, and Count Zech contributes an illustrated paper on the production of kola in West Africa.

THE *U.S. Experiment Station Record* states that the agricultural council of the Russian Ministry of Agriculture and Imperial Estates has taken steps in the direction of improving the character of the live stock and the live-stock industry in general of that country. At present this industry is said to be far behind that of other countries, the animals kept being inferior and stock raising receiving comparatively small attention from the farmers. The council has recommended the holding of live-stock shows, with prizes for excellence, the establishment of breeding farms and furnishing of expert assistance in purchasing good breeding animals, the maintenance of local breeding establishments where the service of pure-bred animals can be secured, and loans to municipalities and societies for the purpose of purchasing pure-bred animals and providing for their care. In order to carry out the above measures the Ministry of Agriculture, with the concurrence of the Minister of Finance, has recommended a grant of 5,000,000 roubles (about 500,000*l.*) to begin this work and a quadrennial grant of about 112,500*l.*

THE *Bollettino* of the Italian Geographical Society contains part of a paper by Prof. Gabriele Grasso on the distribution of place-names in the Italian communes, dealing specially with those names which have the word "monte" either as prefix or suffix. Dr. Cosimo de Giorgi contributes an elaborate discussion of the physical geography and geology of the port of Brindisi, and Dr. Giuseppe Stegagno a note on the lakes of the Euganean Hills. With this number is issued the part of the *Bibliografia geografica della regione Italiana*, by L. F. de Magistris, for 1899.

IN his Annual Progress Report of the Geological Survey for the year 1899 (1900) Mr. A. Gibb Maitland points out that the field-work has been carried on in areas occupied by the ancient crystalline rocks, presumably Archæan, where the work has had a direct bearing on economic questions. The Kanowna mining district to the north-east of Coolgardie was reported on by Mr. T. Blatchford. Here the schists, which are much decomposed, are in places highly auriferous, the granitic rocks and the interlacing quartz veins are also auriferous, as well as the alluvial deposits. The parent sources of the gold are the quartz veins and lodes which traverse the crystalline rocks, but there is much gold of secondary origin filling fissures or diffused over cleavage planes. It is remarked that what may be called secondary gold has been deposited from solution, not only in the alluvium and other superficial deposits, but also in the zone of decomposition of the bed rock.

MR. C. S. MINOT has sent us a paper, reprinted from *Science*, in which he describes and illustrates the unit system of laboratory



construction. The idea is that the essential requirement of a building intended for laboratory work is a number of rooms of uniform and moderate size, abundantly lighted and conveniently accessible. The size proposed is  $23 \times 30$  feet, and a room of these dimensions will provide working space of 3 feet 6 inches  $\times$  5 feet for each of twenty-four students, as well as sufficient space for general use. The only exceptions to the unit-rooms would be the lecture-rooms. It is evident that if an architect has merely to fit rooms of uniform size in a building his designs need only be of a very simple character, and he is, at the same time, given great freedom as to the exterior, which, as Mr. Minot remarks, seems as important to him as the interior is to the users of a building. Many advantages are attached to the unit system of laboratory construction, among them being adaptability and seclusion; and with regard to the construction Mr. Minot states that the cost of a building on the unit plan would be less than for one of equal capacity, but with rooms of the customary irregularity of size.

IN the *Irish Naturalist* for May Dr. R. F. Scharff records from Sligo a woodlouse (*Armadillidium pulchellum*) new to the British fauna. It is typically a northern form, ranging from Scandinavia to Belgium.

NUMBERS 1 and 2 of the fifteenth volume of the *Memorias* of the Society "Antonio Alzate" contain a continuation of the "Alphabetical Cross-reference Catalogue" of the works of the late Prof. Cope. The disadvantage of the mode of quotation adopted is that it is exceedingly difficult to find out which items are the original titles of the papers mentioned. Misprints are also noticeable.

To the April number of the Johns Hopkins University *Circulars* Dr. C. Grave communicates an important geological and economical study of the oyster-reefs of North Carolina. The author describes the manner in which the oyster-banks of the district in question become, like coral-reefs, gradually converted into islands; and points out that some of the islands in Newport River still display their foundation of oyster-shells, while others exhibit the gradual transformation of an oyster-bank into an island. It is also shown that the history of these reefs affords indications of the proper mode of establishing new oyster-beds for economic purposes. Practical application of these principles has been made, with the result that oyster-culture is now successful in localities where previous attempts to start it had resulted in failure.

IN the *Revue Scientifique* of May 4, M. H. Coupin continues his essay on bird-song, dealing in this section chiefly with birds that imitate sounds other than their own. Very remarkable is the instance of a sparrow imitating the stridulation of the grasshopper. One spring a cage containing a sparrow was hung side by side with another in which were grasshoppers. No notice was taken by the sparrow of his neighbours, but next year, when he was again in the same society, he essayed the grasshoppers' chant. And for the rest of his life, when the grasshoppers had long been dead, the sparrow was accustomed to utter a polyglot song combining the notes of the insect with those of other birds. The fact that young linnets will sometimes learn the song of the nightingale instead of their own is mentioned. And it is also stated that several kinds of birds in Thuringia sing much better than the members of their own species dwelling in the Hartz Mountains.

THE *Zeitschrift* of the Berlin Gesellschaft für Erdkunde devotes the whole of the sixth number of the present volume to a paper on the climatology of Morocco, by Dr. Theobald Fischer. In this paper, which is the completion of the work recently published by the author in an *Erganzungsheft* of *Petermann's Mitteilungen*, the meagre data available for the region are discussed with great skill and made the foundation of a quite

satisfactory outline of its climate. A rainfall map forms an important feature. The seventh number of the same volume contains a short paper, with some good illustrations, on the Rocky Mountains and the Sierra Nevada, by Dr. Emil Deckert, and Dr. S. Passarge contributes a valuable account, with maps, of his geological work in British Bechuanaland.

PROF. W. C. M'INTOSH sends us a copy of his article on the coloration of marine animals which appeared in the *Annals and Magazine of Natural History* for March. While admitting that in certain instances the coloration is for the purpose of protection, the author shows that in many cases it is very difficult to accept such an interpretation as the true reason. In the case of pelagic organisms, for example, where the transparency or faint coloration is assumed to be for protective purposes, he points out "that many of the surface-animals are there only for a limited period during fine weather, and disappear into the depths on the advent of storms and cold." The dog-whelk and the cowry (especially when the soft parts are extruded) are cited as creatures that are fairly conspicuous between tide-marks, and it has yet to be proved that they possess "warning colours." The fact that some cetaceans have their flippers or areas on their bodies white, while others are wholly black, seems to demonstrate that their coloration is not protective, this being supported by the conspicuous nature of a black mass exposed above the surface of the sea. The whole subject, in the author's opinion, demands careful revision.

WE have received vol. xxxii. of the *Proceedings* of the London Mathematical Society, containing papers read at meetings during the first half of last year. The publisher is Mr. Francis Hodgson, Farringdon Street, E.C.

THE Priestley Club, Leeds, has published a list of papers read at its meetings from November 1887 to April 23 of this year. The list shows that many subjects of great scientific importance have been brought before the Club, but we are not able to find whether the papers have been published, and if so, where they can be found.

MESSRS. CASSELL AND CO. have published a new edition (the ninth) of "The North-West Passage by Land," by Viscount Milton and Dr. W. B. Cheadle. The book contains the narrative of an expedition across North America, through the Hudson's Bay Territories, into British Columbia, by one of the northern passes in the Rocky Mountains. It originally appeared in 1865, and gives an interesting description of scenes and adventures in the great country of the Canadian North-West nearly forty years ago.

THE additions to the Zoological Society's Gardens during the past week include two Verreaux's Guinea-fowl (*Guttera edouardi*) from East Africa, presented by Mr. W. L. Sclater; a Polecat (*Mustela putorius*), British, presented by Mr. F. D. Lea Smith; a Slowworm (*Anguis fragilis*), British, presented by Mr. H. J. M. von Löhr; a Black-handed Spider Monkey (*Ateles geoffroyi*) from Central America, a Kinkajou (*Cercoleptes caudivolvulus*) from South America, a Nylghaie (*Boselaphus tragocamelus*, ♂) from India, a White-browed Amazon (*Chrysotis albifrons*) from Honduras, a Tuberculated Iguana (*Iguana tuberculata*) from Tropical America, twenty-nine Barbadian Anolis (*Anolis alligator*) from the West Indies, four Hybrid Macaws (between *Ara macao* and *A. militaris*), bred in Italy, two Dark Green Snakes (*Zamenis gemonensis*), an Undulated Lizard (*Sceloporus undulatus*), three Brown Newts (*Spelerpes fuscus*), two Spectacled Salamanders (*Salamandrina perspicillata*), European, deposited; two Pintails (*Dafila acuta*), European, purchased; a Japanese Deer (*Cervus sika*), born in the Gardens.